TECHNICAL GUIDE

CAL. Y513 A

ANALOGUE QUARTZ

CONTENTS

I. SPECIFICATIONS

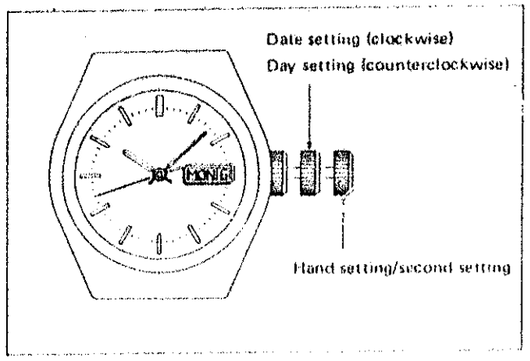
1. Specifications

Item	Cal. No. Y513A
Time indication	Hour, minute & second hands
Additional mechanism	Calendar (day & date) Bilingual change-over system for the day of the week Instant day and date setting Electronic circuit reset switch Second setting device (Stops at every second)
Crystal oscillator	32,768 Hz (Hz = Hertz . . . Cycles per second)
Loss/gain	Loss/gain at normal temperature Monthly rate: less than 15 seconds (Annual rate: less then 3 minutes)
Casing diameter	ϕ27.4 mm
Height	5.2mm
Operational temperature range	−10°C ~ +60°C (14°F ~ 140°F)
Driving system	Step motor system (2 poles)
Regulation system	Rotary step switch system
Battery power	Silver oxide battery U.C.C. 301, SR43SW Battery life is approximately 5 years. Voltage 1.55 V
Jewels	2 jewels

II. HOW TO SET THE TIME AND CALENDAR

Crown position

- **Normal Position** . . . Free
- **1st click** . . . . . Date change (clockwise)
  Day change (counterclockwise)
- **2nd click** . . . . . Hand setting, second setting and reset switch



1. To set the time

1 Pull out the crown to the second click position.
The second hand stops on the every second scale.

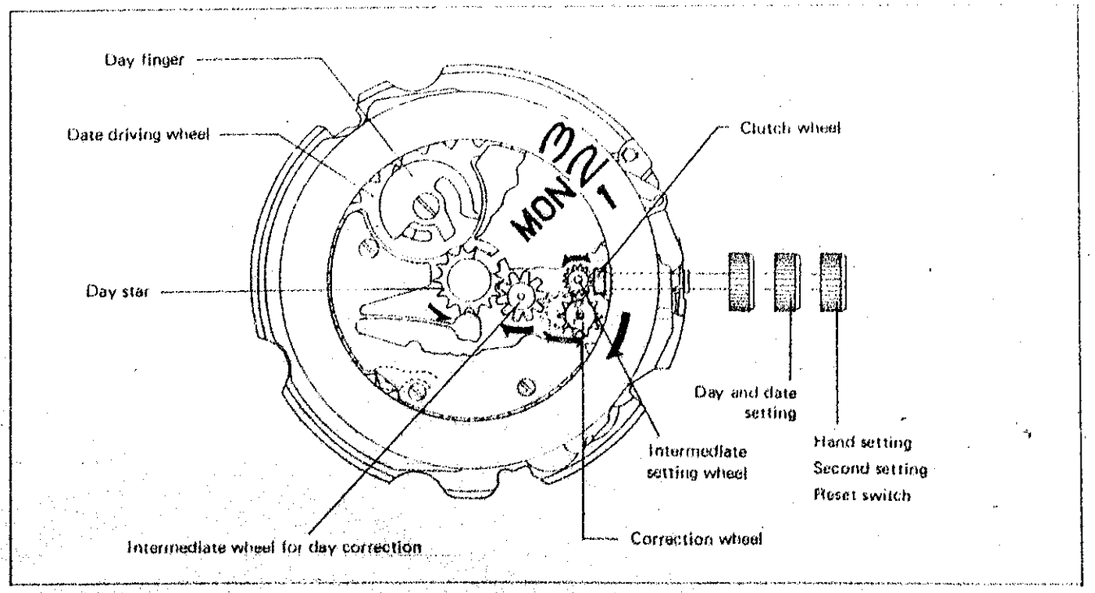
2 Turn the crown and set the time of the hour hand and minute hand.
- Be sure to check if it is set in the A.M. or P.M. period.
  Turn the hour hand past 12 o'clock position to check if it is set in the A.M. or P.M. period. If it is the P.M. period, the date will change.
- As the torque of the gear train is transmitted reversly, the time is set accurately by turning the hands about 5 or 10 minutes ahead and then turning it back to the desired time.

3 Push the crown in accordance with a time signal, and the time is set accurately to the second.

2. To set the calendar

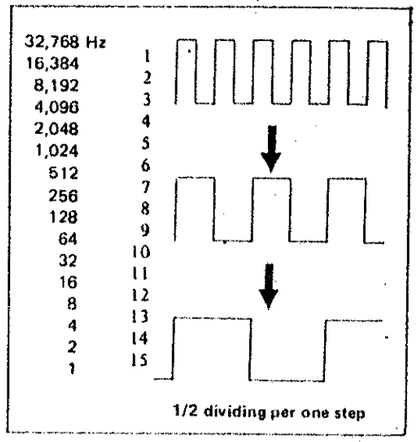
1 Pull the crown out to the 1st click.

2 Turn the crown clockwise and set the date.
Turn the crown counterclockwise and set the day.
- If the setting of the calendar is made when the hour and minute hands are pointing to the time between 9:30 p.m. and 3:30 a.m., sometimes the calendar will not change the next day. The setting must therefore be made before or after this time period.
- Select the desired language as two languages appear alternately when setting the day of the week.

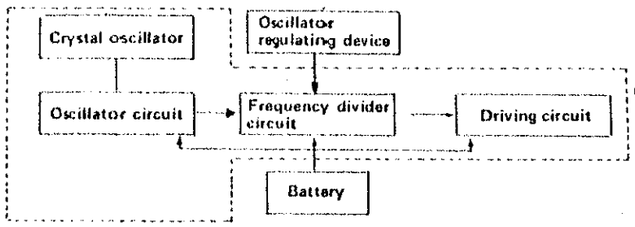


1. Outline of functioning

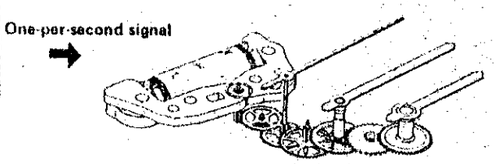
(1) The crystal oscillator by supplying voltage oscillates accurately at 32,768 Hz.
(2) The electronic circuit receives the 32,768 Hz oscillations (electric signals) and converts them into impulses at the rate of one per second, i.e. 1/2 (16,384 Hz), 1/2 (8,192 Hz). . . .
(3) The one-per-second signals are transmitted to the coil block, causing the step motor to rotate once every second in 180° increments.
(4) This rotation is transmitted to the gear train thus moving the hands.



Circuit Block



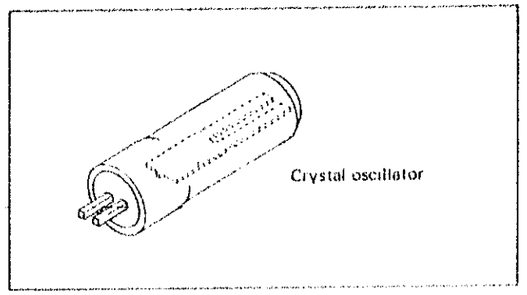
Mechanical Portion



2. Functioning of electronic circuit block

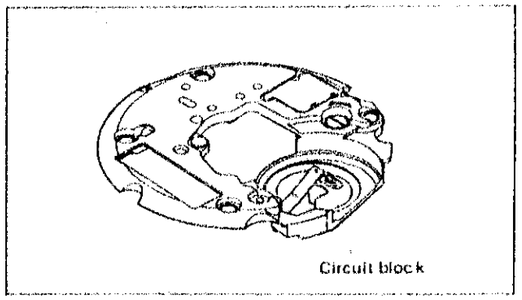
(1) Crystal oscillator

- The quartz crystal oscillator, manufactured by a special technique, is a tuning fork shaped oscillator that is ultrasmall and by far thinner than conventional ones. In order to secure long stability and to be protected against outside influences, the crystal oscillator is housed in a cylinder-type vacuum capsule. When voltage is supplied from the electronic circuit, the crystal oscillator oscillates exactly at 32,768 Hz.



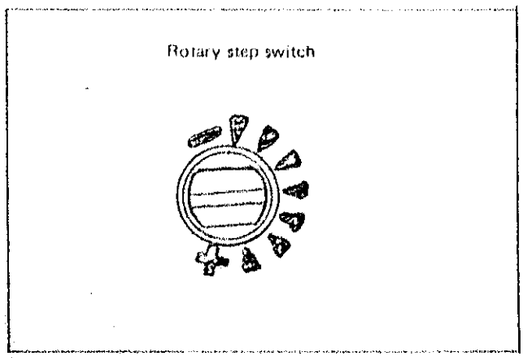
(2) Electronic circuit

- The C-MOS-IC consists of the oscillator circuit, frequency divider circuit and driving circuit, and is connected electrically with the other electronic parts by the lead terminal. The oscillator circuit supplies voltage to the crystal oscillator to cause it to oscillate at 32,768 Hz and at the same time it takes out the oscillations in the form of an electrical signal. The frequency divider circuit divides the 32,768 Hz electrical signal to finally obtain a signal per second, which is transmitted to the step motor through the driving circuit.



(3) Oscillator regulating device

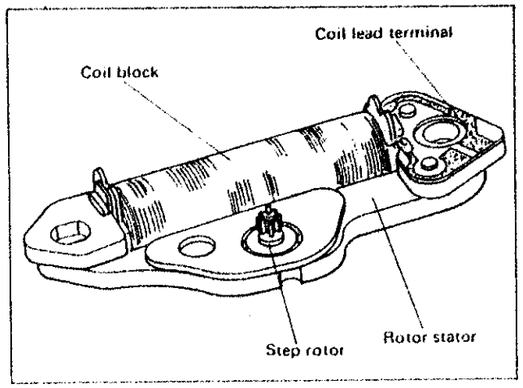
In the ordinary quartz watches, oscillation is regulated by varying the capacity of the trimmer condenser added to the circuit block and changing the number of crystal oscillations slightly. To the contrary, in Cal. Y513A, time adjustment is made by turning the rotary step switch and changing the phase of the signal while dividing frequency (i.e., by increasing or decreasing the number of pulses).

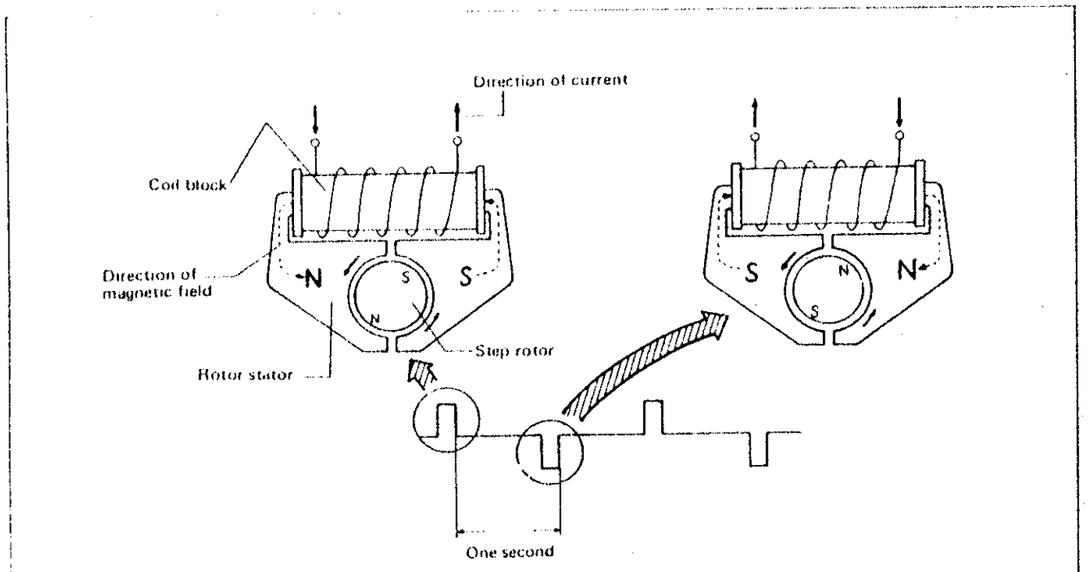


3. Functioning of mechanical portion

(1) Step motor

One of the features of these watches is the step motor which changes the vibrations of the crystal oscillator into a rotating motion. The step motor consists of a coil block, a rotor stator and a step rotor. The rotor stator is made of materials having a high conductivity of magnetic force. The step rotor is a circular-shaped permanent magnet having two alternately imposed N and S poles.





Operational sequence

1 **Current flows in the coil block**
The current, of which the flow direction is changed once every second, is transmitted from the circuit block into the coil block.

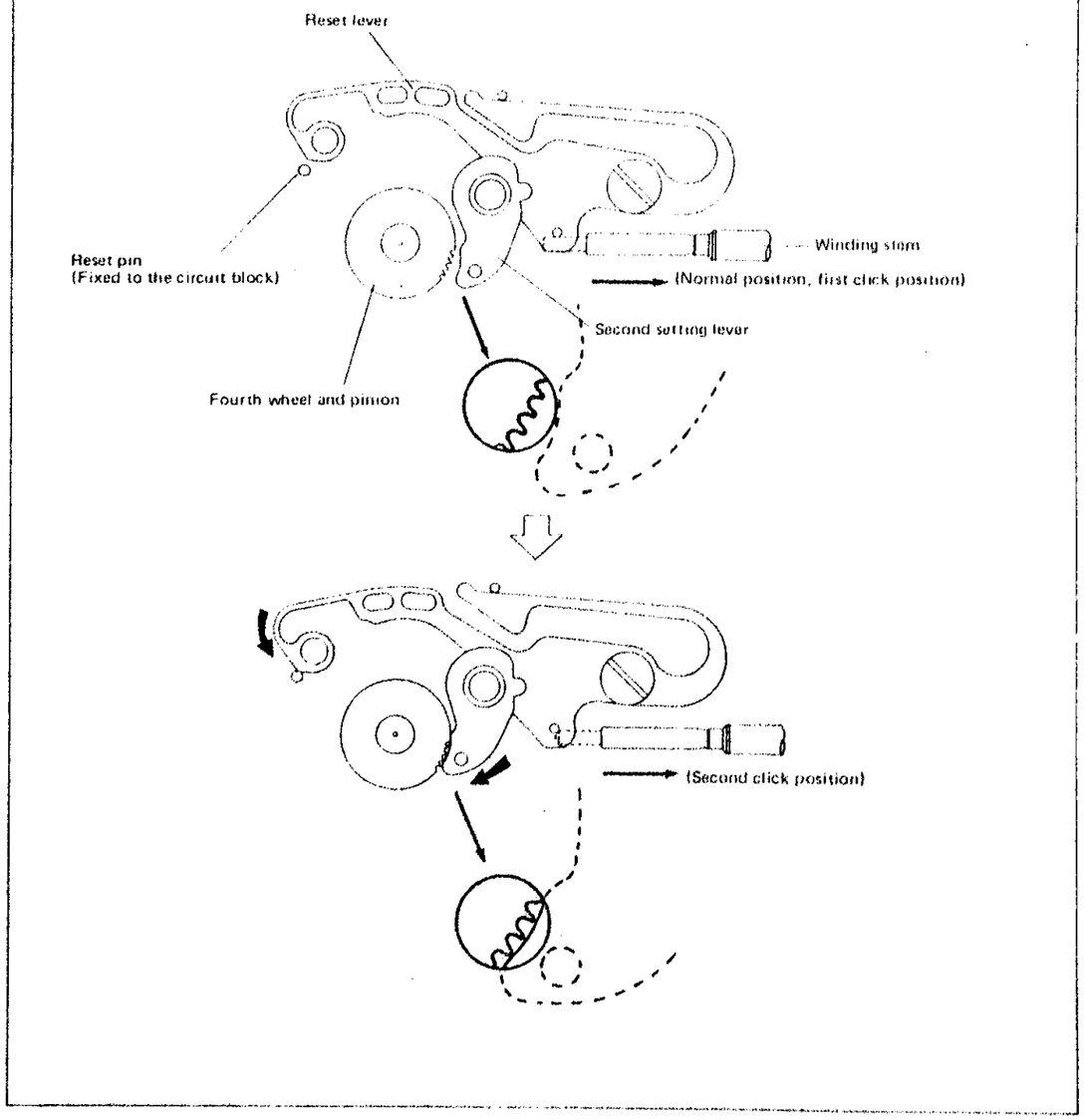
2 **Rotor stators becomes magnets**
When current flows in the coil block, the two rotor stators become magnets and the tip portions become, respectively, N and S poles.

3 **Step rotor rotations**
The N and S poles of the rotor stator tips and the N and S poles of the step rotor alternately repel and attract causing the step rotor to rotate in 180° increments in a constant direction once every second.

4 **Rotation of the second hand**
Rotation of the step rotor is transmitted to the fifth wheel and pinion which gears with the pinion of the step rotor. The rotation of the fifth wheel and pinion is in turn transmitted to the fourth wheel and pinion which gears with the pinion of the fifth wheel. The rotation of the fourth wheel and pinion is finally transmitted to move the second hand.

(2) Second setting and reset switch

- Second setting device
  When the crown is pulled out to the second click position, the pin of the reset lever is disconnected from the tip of the winding stem.
  Then the reset lever turns in the arrow marked direction and at the same time the second setting lever turns also in the arrow marked direction to touch the fourth wheel and pinion. This stops the gear train from moving and the second hand stop at the desired second position.
- Reset switch
  When the crown is pulled out to the second click position, the second hand stops and at the same time the reset lever touches the reset pin (fixed to the circuit block) to set the reset switch in the ON position. When the reset switch is in the ON position, the output signal from the circuit block stops. However, the electric current is still flowing from the battery to the crystal oscillator and part of the electronic circuit, and the watch is ready to start.



IV. HOW TO ADJUST TIME ACCURACY

Time accuracy adjusting

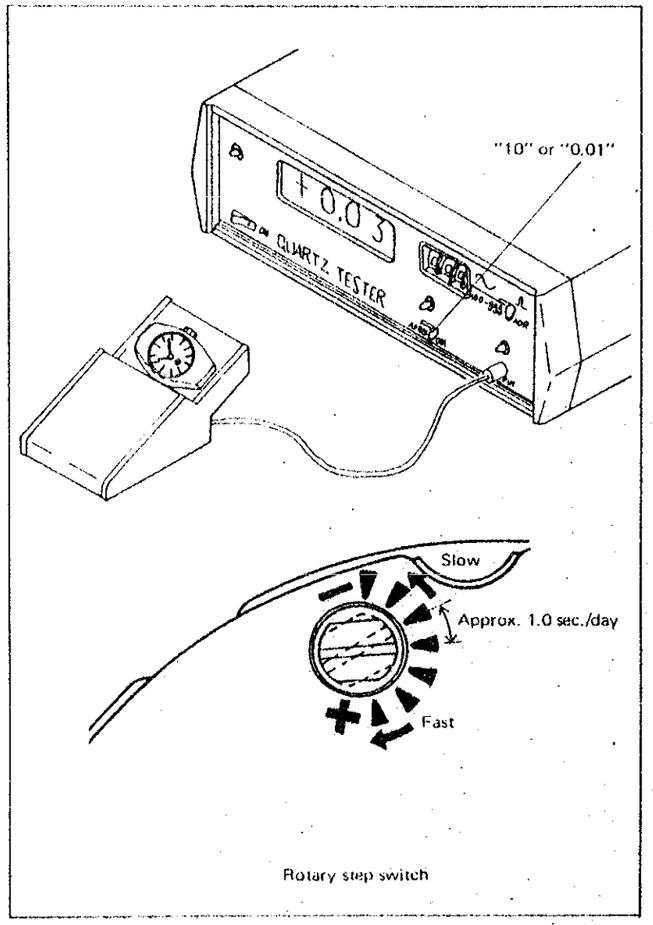
For time adjustment a new rotary step switch system is employed in Cal.Y513A different from the conventional trimmer condenser system. As the different time adjustment is necessary, adjust time according to the following procedures.

Time adjustment procedures:

1 First check time accuracy with the Quartz Tester. Be sure to set the measuring time selection switch at "10" or "0.01". Measurement may be possible at other seconds than "10" (ex. "2", "12"), but the indication is not correct. Be sure to set at "10".
In Cal. Y513A, accuracy is compensated once every 10 seconds inside the circuit.

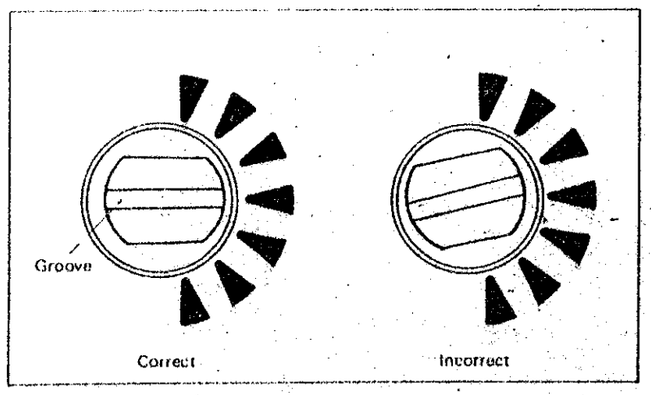
2 Next turn the rotary step switch and adjust.
- Every 1-step turn of the rotary step switch will make a change of about 1.0 seconds fast or slow per day (gaining by turning clockwise and losing by turning counterclockwise).
- Adjust the rotary step switch at a step nearest "0" in loss or gain per day.

3 After having turned the rotary step switch, be sure to check time accuracy with the Quartz Tester.



Rotary step switch

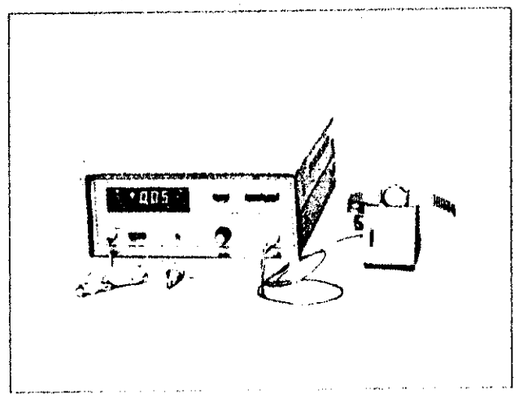
When turning the rotary step switch, fit the center line of the groove to the ◀ mark. If the center line of the groove is not in line with the ◀ mark, time accuracy may change excessively.



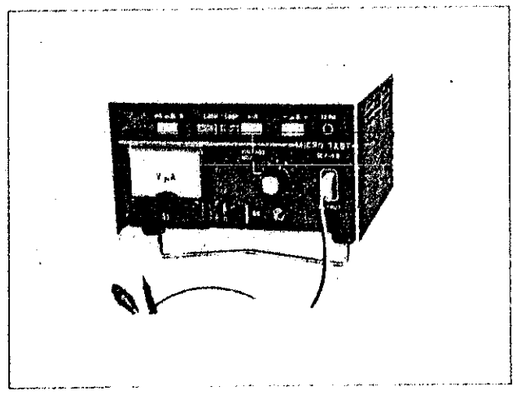
V. AFTER-SALE SERVICING INSTRUMENTS AND MATERIALS

For repair servicing, the following after sale-servicing instruments and materials are necessary.

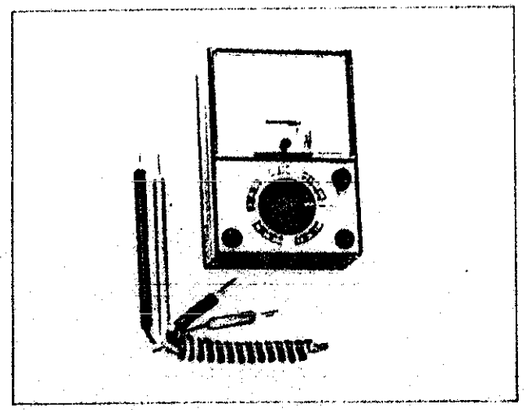
1. **Quartz Tester**
Used to check time accuracy (daily rates) and the output signal from circuit block.



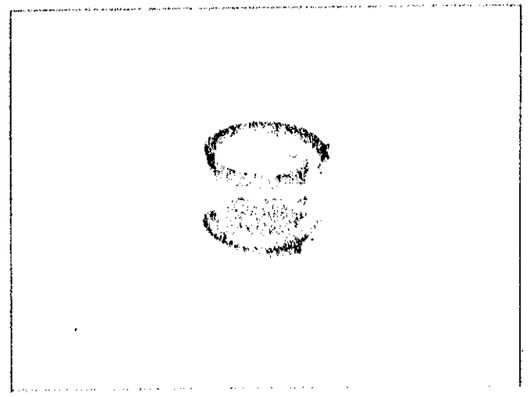
2. **Micro Test MT-10II**
Used to check current consumption and supplies a constant flow of voltage power.



3. **Volt-ohm-meter**
Used to check battery voltage and its conductivity and to measure current consumption and resistance.



4. **Movement holder**
Choose one of the movement holders for the 61 series in the movement holder unit S-680.



5. **Others**
(1) Anti-magnetic tweezers for handling step rotor.
(2) Non-metallic tweezers for handling battery.

1. Disassembling, Reassembling and Lubricating

- **Disassembling and reassembling**

  Disassembling procedures Figs.: ① ~ ㊽

  Reassembling procedures Figs.: ㊽ ~ ①

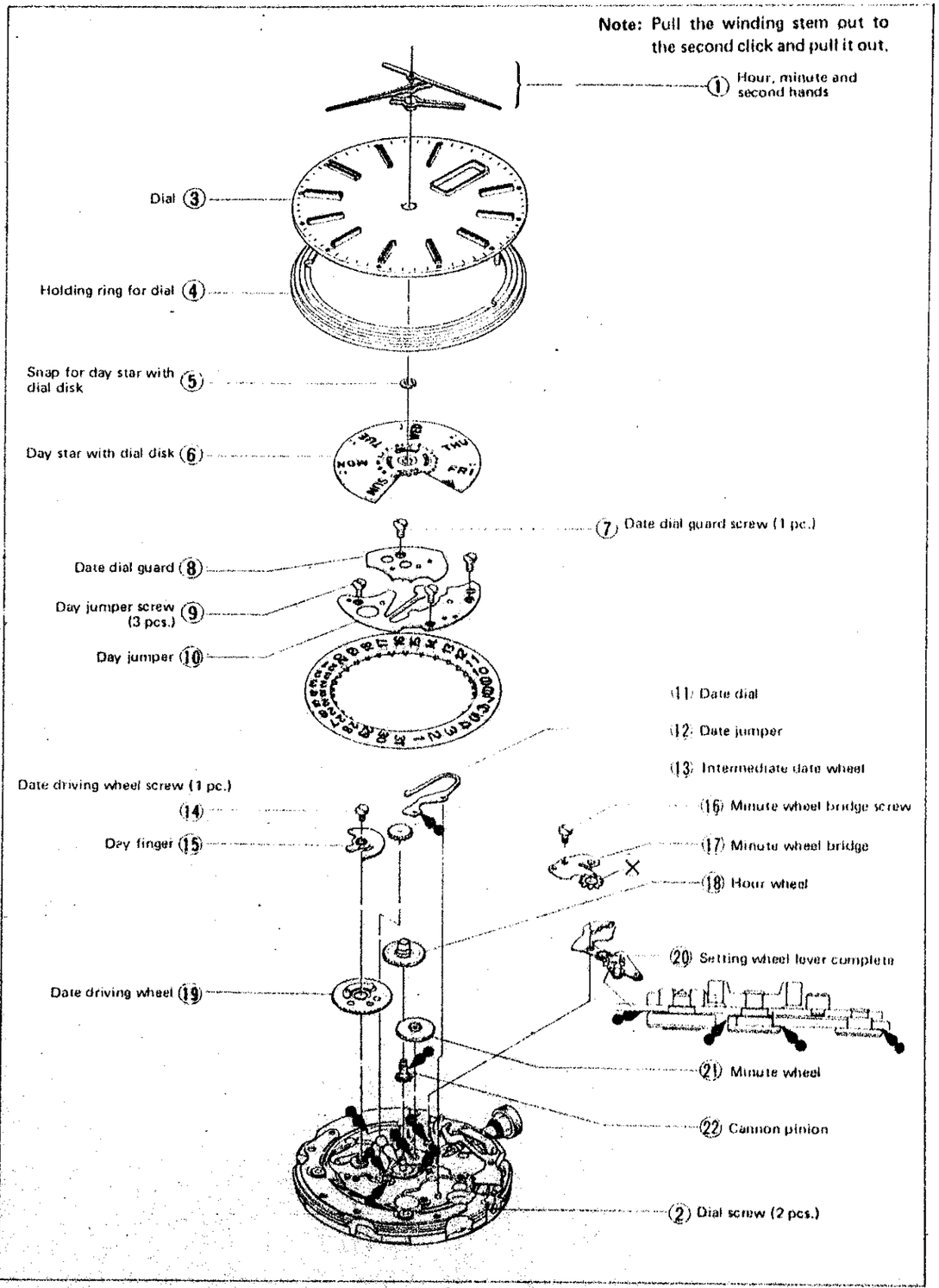
- **Lubricating**

The following marks in the diagrams for disassembling and reassembling indicate the types and quantities of oil to be applied and the lubricating portions. Be sure to lubricate according to the marks.

Type of oil	Oil quantity
Moebius A	Liberal quantity
Seiko watch oil S-6	Normal quantity
	Extremely small quantity

Never lubricate the portions marked ⊗ .

(1) Disassembling, reassembling and lubricating of the calendar mechanism



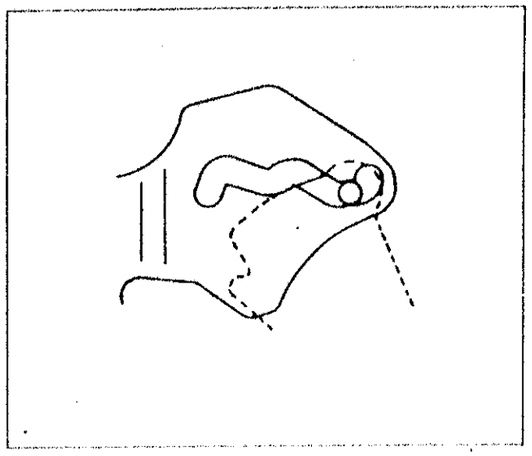
List of screws used

Six types of screws are used in Cal. Y513A.

Shape	Part No.	Part name (common)	Shape	Part No.	Part name (common)
	022257	Setting lever spring screw (1 piece)		022494	Reset lever screw (1 piece)
	022468	Third wheel bridge screw (2 pieces) Center wheel bridge screw (1 piece) Circuit block screw (4 pieces) Screw for battery connection of plus terminal (1 piece) Date driving wheel screw (1 piece)		022760	Day jumper screw (3 pieces) Date dial guard screw (1 piece)
	022491	Minute wheel bridge screw (1 piece)		022761	Dial screw (2 pieces)

Remarks for disassembling and reassembling

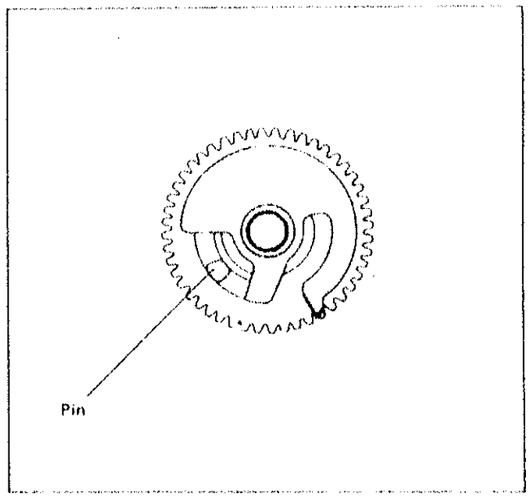
(1) Hour, minute and second hands
- Pull out the crown to the second click position for disassembling and reassembling.
- Be sure to assemble the second hand exactly on the second mark (either odd or even second marks will do.)



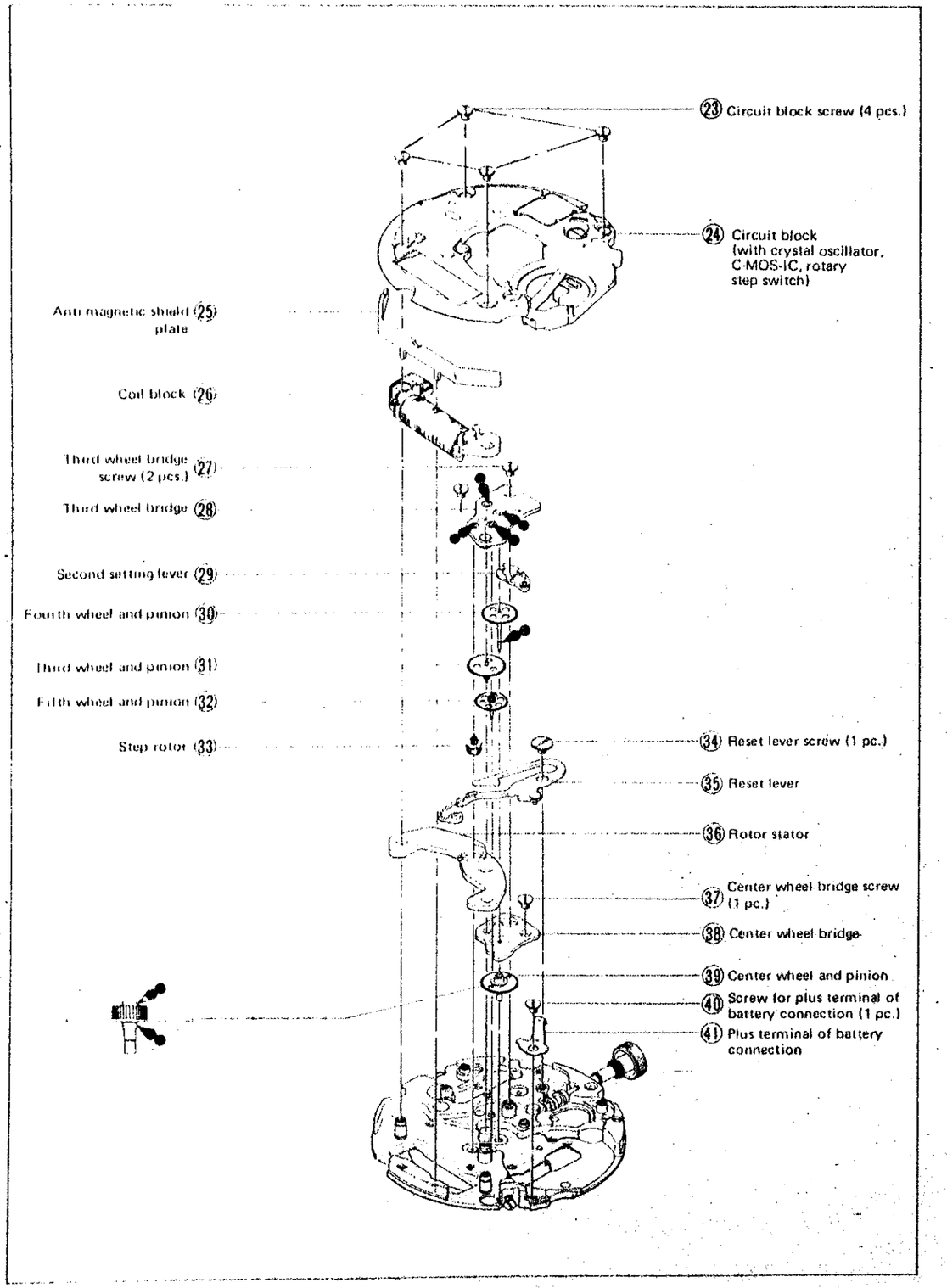
Remarks for reassembling

(20) Setting wheel lever complete
Reassemble so that the groove of the setting wheel lever complete holds the setting lever axle.

(15) Day finger
Reassemble so that the pin of the date driving wheel is positioned as shown in the illustration on the right.



(2) Disassembling, reassembling and lubricating of the circuit block, coil block and gear train



Remarks for disassembling

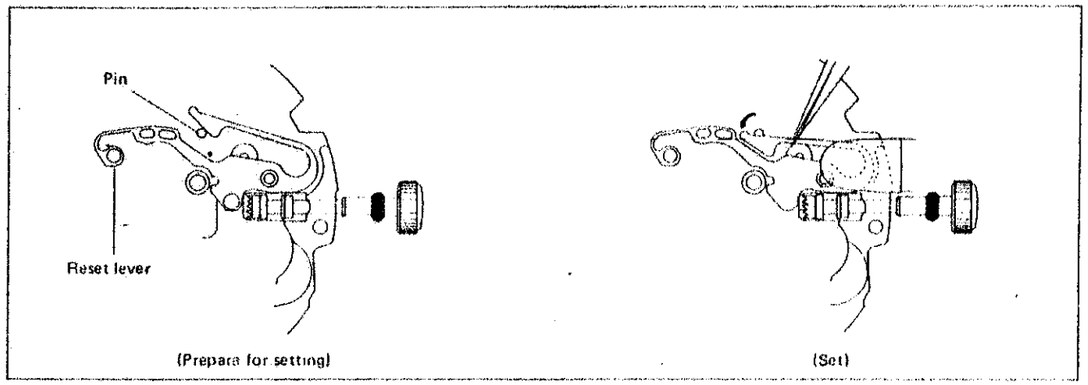
Disassemble with the crown in the normal position.

Remarks for reassembling

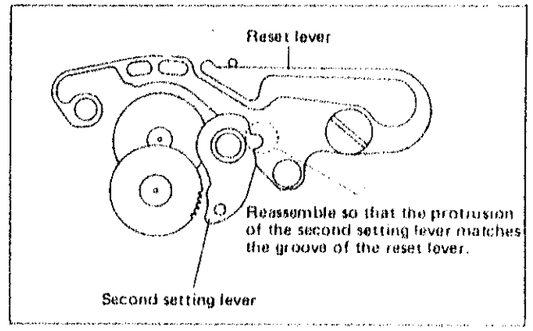
(35) Reset lever

Reassemble with the crown in the second click position.

Depress the crown back into the normal position after the reset lever is set.

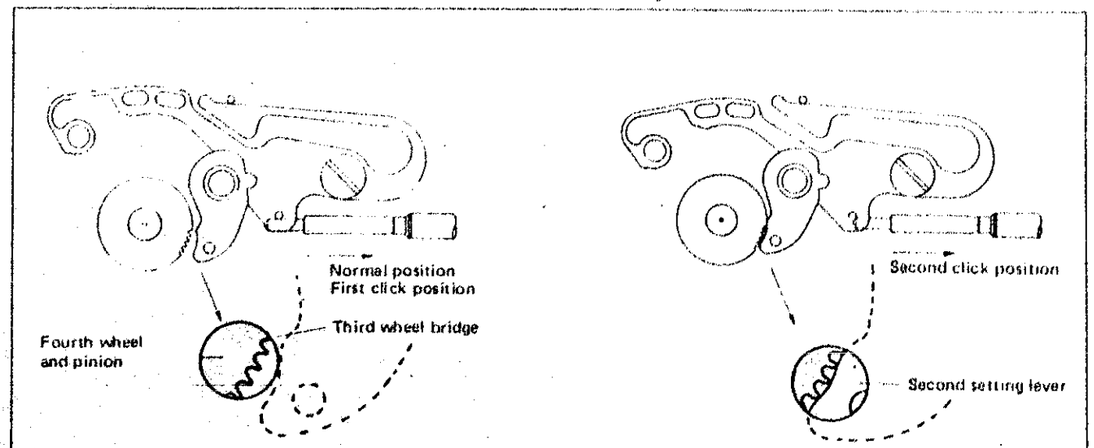


(29) Second setting lever

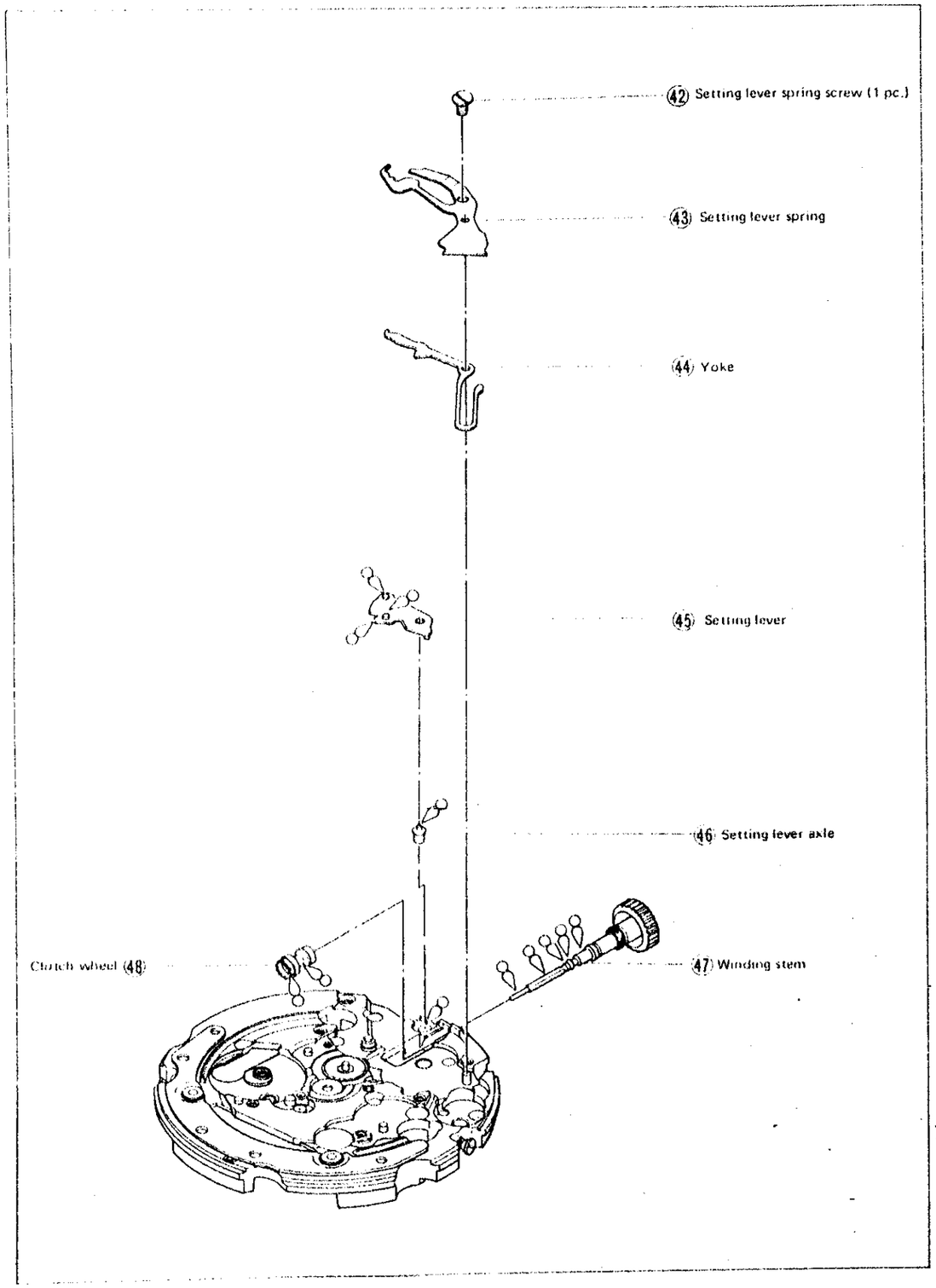


(28) Third wheel bridge

After reassembling the third wheel bridge, check to see if the fourth wheel and pinion is set correctly when the crown is in the second click position.



(3) Disassembling, reassembling and lubricating of the setting mechanism



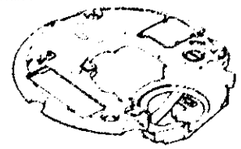
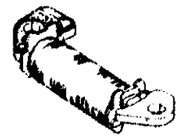
2. Cleaning

Since several parts (electronic parts, etc.) used in the Cal. Y513A differ from conventional mechanical waches, use the following method when cleaning.

1) HOW TO CLEAN

Name of parts	Cleaning	Drying	Solution	Remarks
Main plate  Step rotor  Plastic parts Date driving wheel Day finger Intermediate date wheel Second setting lever	Rinse or wash with a soft brush	Warm air	Benzine, alcohol	• Be careful not to remove the parts fixed to the main plate. Be especially careful not to bend the anti-magnetic shield plate. • Use a clean solution as the step rotor is magnetized. Any foreign matter which cannot be removed by cleaning should be removed with rodico or adhesive tape. • When cleaning with benzine, the cleaning time should be minimized.
Others (excluding the parts that must not be cleaned)	Clean with the cleaner, rinse or gently scrub with a soft brush.	Warm or hot air	Benzine, alcohol, trichloroethylene	• Be careful not to bend the anti-magnetic shield plate.

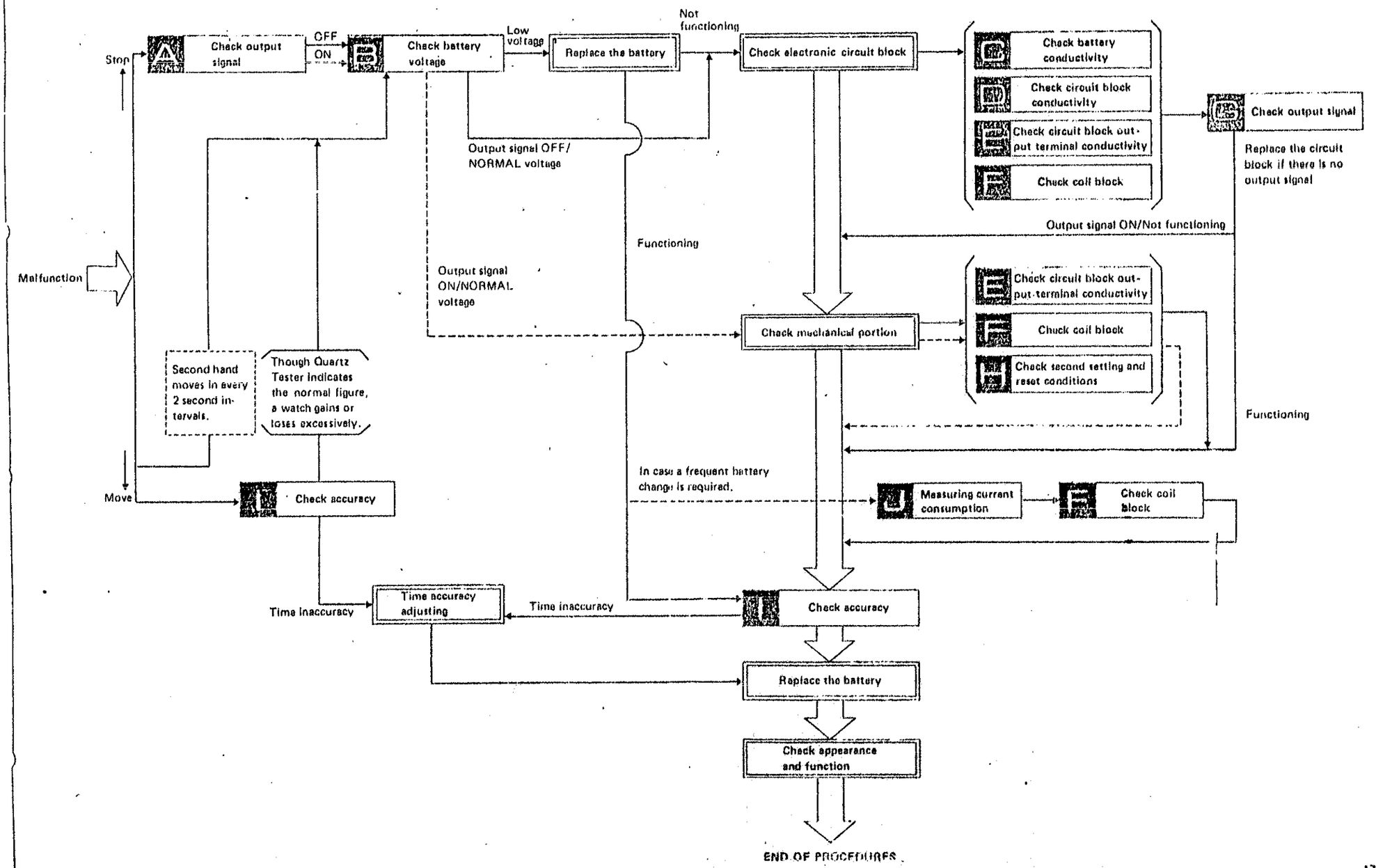
2) PARTS THAT MUST NOT BE CLEANED

 Circuit block	 Coil block	Do not wash.	• Be sure to clean only stains on the conductive portions with a cloth moistened with benzine, alcohol or DAIFLON SOLVENT S 3 and dry them with cool air.

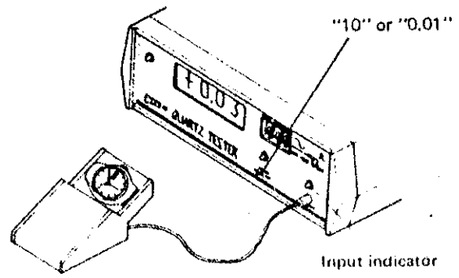
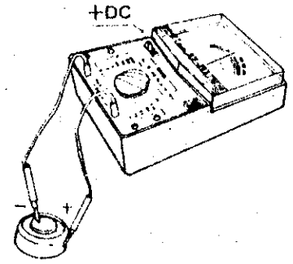
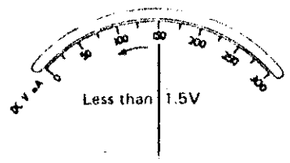
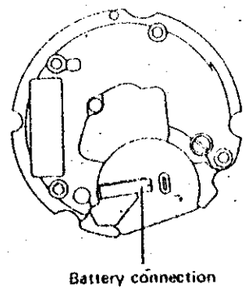
VII. CHECKING AND ADJUSTMENT

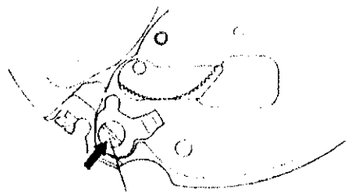
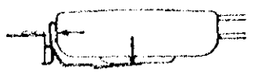
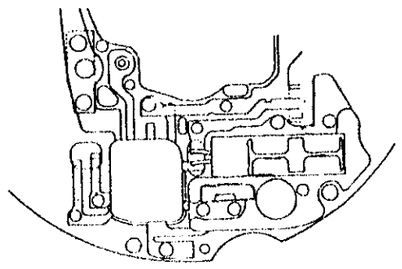
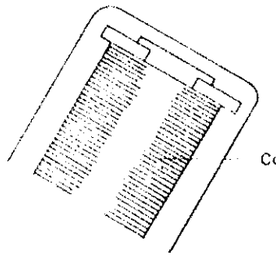
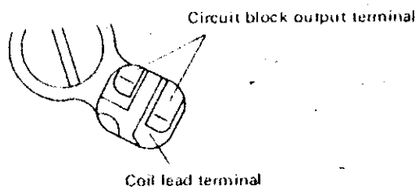
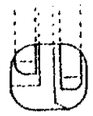
1. Guide table for checking and adjustment

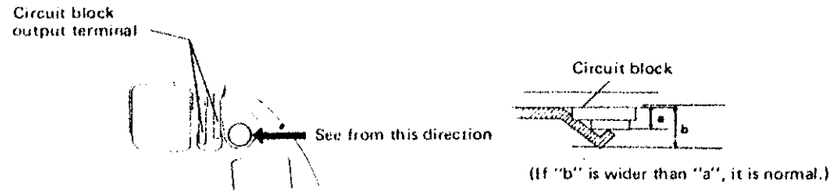
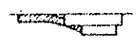
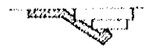
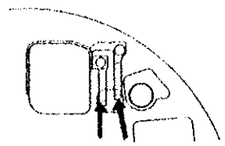
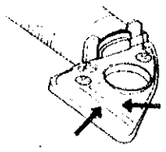
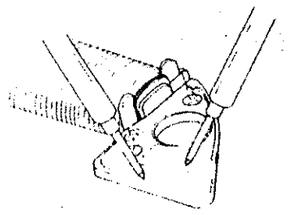
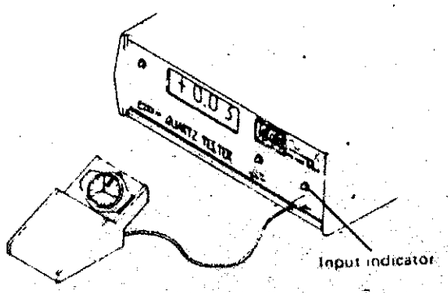
When the second hand moves in 2 second intervals instead of the normal one second interval, check battery voltage and replace with provisional battery. The second hand moves in 2 second intervals when the battery life is coming to its end. The watch will, however, remain accurate while the second hand is moving in 2 seconds intervals.

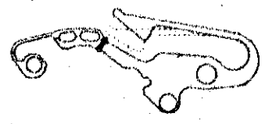


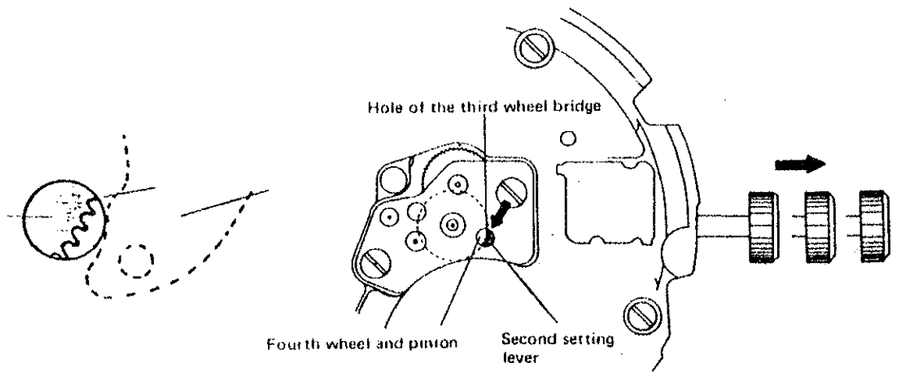
2. Procedures for checking and adjustment

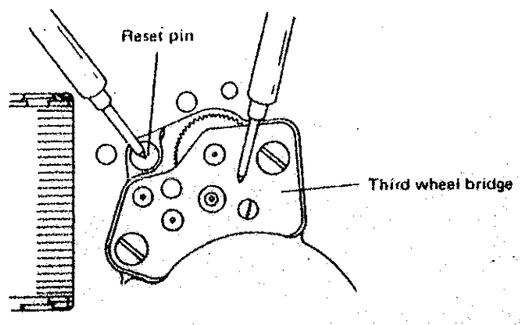
	Procedures	Result	Adjustment and Repair
A CHECK OUTPUT SIGNAL	Check output signal. 1 Set up the Quartz Tester Be sure to set the measuring selection switch at "10" or "0.01". 2 Checking Check for blinking input indication light.  **Note:** The checking must be made when the crown is in the normal position.	One-second blinking --- Normal No one-second blinking --- Defective	Proceed to B
B CHECK BATTERY VOLTAGE	Use the following procedures to check battery voltage. 1 Set up the volt-ohm meter Range to be Used: DC 3V 2 Measuring • Probe Red (+) ..... Battery surface (+) • Probe Black (-) ..... Battery surface (--)  **Note:** When handling the battery, use non-metallic tweezers or fingercot. When there is battery electrolyte leakage, refer to "HOW TO CHECK AND REPAIR WHEN THERE IS BATTERY ELECTROLYTE LEAKAGE" below for repairing.	More than 1.5 V --- Normal Less than 1.5 V -- Defective 	Proceed to Check mechanical portion if one-second blinking is found. Proceed to Check electronic circuit block if one-second blinking is not found. Proceed to Replace the battery. • If the watch functions after battery replacement, proceed to J • If the watch does not function, proceed to Check electronic circuit block.
HOW TO CHECK AND REPAIR WHEN THERE IS BATTERY ELECTROLYTE LEAKAGE	1. Remove the movement from the case. 2. Disassemble the movement. 3. Wipe off battery electrolyte on the circuit block. (1) Wipe off battery electrolyte with a cloth moistened with distilled water. (If distilled water is not available, use tap water.) **Note:** Do not expose the trimmer condenser to water or alcohol. If it is exposed, there may be a change in its condenser capacity and eventually in the time accuracy. Be sure to wipe off battery electolyte on the battery connection.  (2) Wipe them with a cloth moistened with alcohol. (If the cleaned portions remain wet with water, they will corrode with rust.) (3) Dry with warm air by using a dryer. 4. Wipe off battery electrolyte on the other parts by following the procedures on page 16. 5. Reassemble the movement. (Replace the battery with a new one.) 6. Check to see if the time setting functions and the current consumption are normal.		

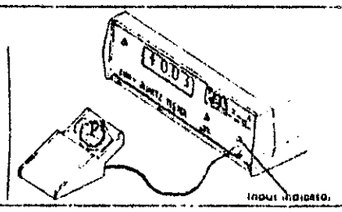
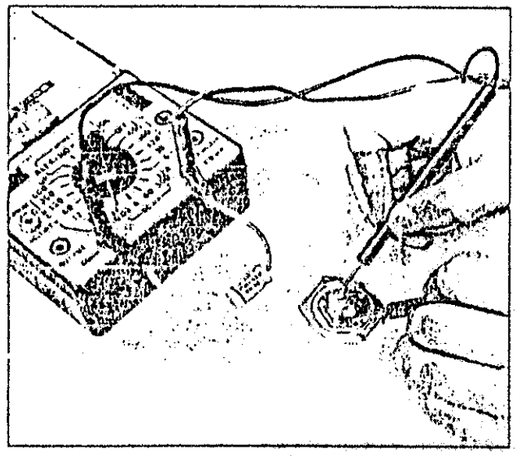
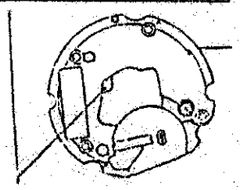
	Procedure	Result	Adjustment and Repair
C CHECK BATTERY CONDUCTIVITY	Check to see if the battery current flow to the circuit is normal.  Screw for plus terminal of battery connection 1 Check to see if the screw for plus terminal of battery connection is tightened firmly when the circuit block is disassembled. 2 Check for any foreign matter on the connecting portions of the battery, the plus terminal of battery connection and the battery connection.  	No loosened screw ---------- Normal ---------→ Loosened screw ---------- Defective ---------→	Proceed to C 2. Retighten the screw.
D CHECK CIRCUIT BLOCK CONDUCTIVITY	Check for any short circuit and detective conductivity of the conductive portions of the circuit block. Disassemble the circuit block and check conductivity of the by using a microscope. 	No short circuit or defective conductivity ---- Normal ---------→ Short circuit and defective conductivity ---- Defective ---------→	Proceed to E Replace the circuit block with a new one.
E CHECK CIRCUIT BLOCK OUTPUT TERMINAL CONDUCTIVITY	1. Check the contacting portions of the circuit block output terminal and the coil block. 1 Check to see if there is no short circuit of the circuit block output terminal by viewing through the hole of the circuit block.  Coil block  Circuit block output terminal Coil lead terminal	Circuit block output terminal ---------→  Short circuit ---------→ 	Proceed to E 1 2. Correct the bend of the circuit block output terminal by using tweezers. 

	Procedure	Result	Adjustment and Repair
E CHECK CIRCUIT BLOCK OUTPUT TERMINAL CONDUCTIVITY	2 Disassemble the circuit block and check to see if the circuit block output terminal is positioned as shown in the illustration below.  (If "b" is wider than "a", it is normal.)	 →	E 2
		 →	Correct the bend of the circuit block output terminal b, using tweezers. 
	2 Check for any contamination on the circuit block output terminal and the coil lead terminal.  	Uncontaminated ---------- Normal →	Proceed to F
		Contaminated ---------- Defective →	Wipe off any foreign matter.
F CHECK COIL BLOCK	Check for broken coil wire and short circuit of the coil block after disassembling the circuit block. 1 Set up the Volt-ohm-meter Range to be used: OHMS R x 100 2 Checking Apply the probes of the Volt-ohm-meter to the coil lead terminal as shown in the illustration on the right. 	Pointer of the Volt-ohm-meter swings →	Proceed to G if the electronic circuit block must be checked.
		Broken coil wire (Pointer of the Volt-ohm-meter hardly swings) Short circuit (Pointer of the Volt-ohm-meter swings excessively) →	Proceed to H if the mechanical portion must be checked. Replace the coil block with a new one.
G CHECK OUTPUT SIGNAL	Check for output signal. 1 Set up the Quartz Tester Be sure to set the measuring time selections switch at "10" or "0.01". 2 Checking Follow the same procedures as in A 	One-second blinking — Functioning →	Proceed to J
		One-second blinking — Not functioning →	Proceed to Check mechanical portion H
		No one-second blinking →	Replace the circuit block with a new one.

Procedure	Result	Adjustment and Repair
Check the second setting lever condition and reset condition. 1. Check to see if the second setting lever functions correctly. 1 Check to see if there is clearance between the second setting lever and the fourth wheel and pinion when the crown is in the normal and the first click positions. Also, check to see if the second setting lever touched the fourth wheel and pinion when the crown is in the second click position. (Check through the hole of the third wheel bridge by using a microscope.)	Function ---------- Normal ⟶	Proceed to H 2.
	Does not function ---------- Defective ⟶	• Correct the bend of the spring of the reset lever if there is any. (If it is impossible to correct, replace the reset lever with a new one).  • Replace the second setting lever with a new one if it is damaged.
2. Check the reset condition after the circuit block and the battery are reassembled. (1) Check to see if the second hand stops immediately when the crown is pulled out completely and if it starts promptly one second after the crown is pushed in to the normal position. (2) Check to see if the conductivity between the reset pin and the main plate is normal when the crown is pulled out completely.	Stops completely and starts moving after one second ---- Normal ⟶	Proceed to H.
	Does not stop or moves irregularly ---- Defective ⟶	Proceed to H 2.
1 Set up the Volt-ohm-meter Range to be used: OHMS R x 1 **Note**: Be careful not to use the range other than R x 1. The circuit might be damaged if another range is used.		
2 Checking Measure the resistance by applying one of the probes of the Volt-ohm-meter to the third wheel bridge and the other probe to the reset pin.	Less than 10 Ω ---------- Normal ⟶	Replace the circuit block with a new one.
	More than 10 Ω ---------- Defective ⟶	Correct the bend of the reset lever or replace it with a new one. 





	Procedure	Result	Adjustment and Repair
CHECK GEAR TRAIN	Check the gear train with respect to the following points. 1. Check for dust, lint and fillings. 2. Check for oil condition (quantity, deterioration, etc.). 3. Check to see if the clearance is normal.	Normal ——→ Defective ——→	Replace the circuit block with a new one. Correct the defective portions. (Removal of dust, lint and fillings, relubricating and adjustment of clearance)
CHECK ACCURACY	Check gain and loss of time. 1 Set up the Quartz Tester 2 Checking Check using the same procedure as in A Be sure to set the measuring time selection switch at "10" or "0.01". 	Normal ——→ Defective ——→	Follow the procedures shown on page 17. Proceed to Time accuracy adjusting
TIME ACCURACY ADJUSTING	Adjust the time accuracy by turning the rotary step switch. Be sure to send the instructions on page 7 before adjusting the time accuracy.		
MEASURING CURRENT CONSUMPTION	In case a frequent battery change is required, a current consumption test is recommended. Use the following procedures. 1 Set up the Volt-ohm-meter • Range to be used. DC 0.03 mA or 12 μA • Set up the condenser of 200 ~ 500 μF as shown in the photo. 2 Measurement • Place the battery on the third wheel bridge with its minus side up. Probe Red (+) .... Battery connection Probe Black (–) ... Battery surface (–)  • If the pointer of the Volt-ohm-meter scales out, reset its range up to DC 30 mA which does not cause the pointer to swing over with the probes applied and 2 to 3 seconds later return the range to DC 0.03 mA or DC 12 μA and read the valve indicated. Note: Be sure to measure with the crown of the watch in the pushed in position.  • Be careful that the battery does not touch the reset pin when measuring.	Less than 2.5 μA ---------- Normal ——→ More than 2.5 μA ---------- Defective ——→ Remarks: There might be a slight difference in the measured value depending upon the type of volt-ohm-meter. When judging the circuit block condition, be sure to take this into consideration.	Proceed to F Proceed to E When the coil block is found normal, replace the circuit block with a new one. All procedures of Disassembling and Reassembling and Checking and Adjustment are completed.

Cal. Y513A

Characteristics:

Casing diameter: ϕ 27.0 mm
Maximum height: 5.2 mm
Jewels: 2 J
Frequency of quartz crystal oscillator: 32,768 Hz (Hz..Hertz. . . . . Cycles per second)
Driving system: Step motor system (2 poles)
Regulation system: Trimmer condenser
Second setting device
Calendar (day & date)
Instant setting device for day & date calendar
Bilingual change-over system for day of week
Battery life indicator: Second hand moves in two-second interval

PART NO.	PART NAME
122 750	Center wheel bridge
131 983	Third wheel bridge
221 750	Center wheel & pinion
225 611	Cannon pinion
231 750	Third wheel & pinion
241 750	Fourth wheel & pinion
261 611	Minute wheel
271 611	Hour wheel
282 601	Clutch wheel
354 601	Winding stem
383 601	Setting lever
384 601	Yoke (Clutch lever)
387 601	Minute wheel bridge
388 601	Setting lever spring
390 601	Setting lever axle
391 750	Second setting lever
701 750	Fifth wheel & pinion
☆**801 602** / ☆801 611	Date dial
802 601	Date driving wheel
803 601	Setting wheel lever complete
808 601	Date dial guard
810 601	Date jumper
817 611	Intermediate date wheel
868 601	Day finger
☆**870 558** / ☆870 559	Day star with dial disk
873 601	Day jumper
☆**884 750** / ☆884 752 / ☆884 746	Holding ring for dial
963 610	Snap for day star with dial disk
4001 983	Circuit block
4002 750	Coil block
4146 750	Step rotor
4239 750	Rotor stator
4242 754	Plus terminal of battery connection
4259 750	Anti-magnetic shield plate
4455 750	Reset lever
022 257	Setting lever spring screw
022 468	Third wheel bridge screw
022 468	Center wheel bridge screw
022 468	Circuit block screw
022 468	Screw for plus terminal of battery connection
022 468	Date driving wheel screw
022 491	Minute wheel bridge screw

PART NO.	PART NAME
022 494	Reset lever screw
022 760	Day jumper screw
022 760	Date dial guard screw
022 761	Dial screw
011 537	Lower hole jewel for step rotor
011 537	Upper hole jewel for step rotor
U.C.C.301	Silver oxide battery

☆ : Please see remarks on the reverse page.
Part numbers in light letters are not shown in photos.

Cal. Y513A

Remarks:

Date dial

☆801 602 (Black figures on white background)
☆801 611 (White figures on black background)
..... Used for the crown at **4** o'clock and the calendar frame at **3** o'clock position.

If any other type of date dial is required, specify ① Cal. No. ② The crown position ③ The calendar frame position ④ Jewels and ⑤ Dial No.

Day star with dial disk

☆870 558 (English ⟷ Spanish, black figures on white background)
☆870 559 (English ⟷ Spanish, white figures on black background)
..... Used for the crown at **4** o'clock and the calendar frame at **3** o'clock position.

If any other type of day star with dial disk is required, specify the number printed on the disk.

Holding ring for dial

☆884 750 ····· Used for the snap-type case with round dial, the crown at **3** o'clock position.

☆884 752 ····· Used for 100m water resistant watches, the crown at **4** o'clock position and, for the watch of screw-type case back with round dial, the crown at **3** o'clock position.

☆884 746 ····· Used for the model provided with the dial (outside diameter 27.5 mm) with the dial ring which can withstand to a pressure of over 10 atmospheres.

The type of holding ring for dial is determined based on the design of cases and dials.
If the shape of the holding ring for dial is different from the above, or if the Part No. of the holding ring for dial is unknown, check the casa number and refer to **"Casing Parts List"** to choose a corresponding holding ring for dial.

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